

**HALF-BRIDGE HIGH VOLTAGE GATE DRIVER
PROVIDING PROTECTION OF A TRANSISTOR**

ABSTRACT OF THE DISCLOSURE

A gate drive integrated circuit for switching power transistors using an external controller includes a gate driving capability and low quiescent current and allows use of a bootstrap supply technique for providing the logic supply voltage. The gate driver integrated circuit detects power transistor desaturation, protecting a desaturated transistor from transient over voltages by smoothly turning off the desaturated transistor via a soft shutdown sequence. A fault control circuit of the gate driver integrated circuit manages protection of supply under-voltage and transistor desaturation and is capable of communicating with a plurality of gate driver integrated circuits in a multi-phase system using a dedicated local network.